

MAY 20 2002

PTO/SB/08A (10-01)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no person shall be required to provide information unless it displays a valid control number.

Substitute for form 1449A/PTO

(use as many sheets as necessary)

Complete if Known

Application Number	10/076.727
Filing Date	02/23/2002
First Named Inventor	John T. Groves
Art Unit	1645
Examiner Name	Unassigned
Attorney Docket Number	IB-1695

Sheet	1	of	1
-------	---	----	---

U.S. PATENT DOCUMENTS

[illegible]

FOREIGN PATENT DOCUMENTS

[illegible]

**Examiner
Signature**

Date Considered

1/26/05

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with USPTO Manual of Patent Examining Procedure (MPEP) 2100.01. ¹ Applicant's unique citation designation number (optional). ² See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 2100.01. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the serial number of the document must precede the serial number of the patent document. ⁵ Kind of document by the number in parentheses. ⁶ Applicant is to place a check mark here if the document is a translation of a foreign patent document.

¹ Applicant's unique citation designation number (optional). ² See Rules 1.1 and 1.2. ³ For Japanese patent documents, 901.04. ⁴ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁵ Kind of document by the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁶ Kind of document by appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁷ Applicant is to place a check mark here if English language Translation is attached.

appropriate symbols as indicated on the document under WIPO Standard ST/43. Time will vary depending upon the needs of the individual case. English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.**

RECEIVED

PTO/SB/088, (10-01)

Approved for use through 10/31/2002. OMB/A-51-0039

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

TECH CENTER 1600/2900



Substitute for form 1449B/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet 1 of 5

Complete if Known

Application Number 10/076 727
 Filing Date 02/13/2002
 First Named Inventor John T. Groves
 Group Art Unit 1645
 Examiner Name Unassigned
 Attorney Docket Number IB-1695

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
me	✓	KLEINFELD, D., K.H. KAHLER AND P.E. HOCKBERGER, "Controlled outgrowth of dissociated neurons on patterned substrates," J. Neurosci, Vol. 8 (No. 11), p. 4098-4120, (1988).	
	✓	CLARK, P., S. BRITLAND, AND P. CONNOLLY, "Growth cone guidance and neuron morphology on micropatterned laminin surfaces," J. Cell Sci., Vol. 105, p. 203-212, (1993).	
	✓	SINGHVI, R., ET AL., "Engineering cell shape and function," Science, Vol. 264, p. 696-698, (1994).	
	✓	HEALY, K.E., B. LOM, AND P.E. HOCKBERGER, "Spatial distribution of mammalian cells dictated by material surface chemistry," Biotechnol. Bioeng., Vol. 43, p. 792-800, (1994).	
	✓	MRKSICH, M., ET AL., "Controlling cell attachment on contoured surfaces with self-assembled monolayers of alkanethiolates on gold," Proc. Natl. Acad. Sci. USA, Vol. 93, p. 10775-10778, (1996).	
	✓	CHEN, C.S., ET AL., "Geometric Control of Cell Life and Death," Science, Vol. 276, p. 1425-1428, (1997).	
	✓	TAKAYAMA, S., ET AL., "Patterning cells and their environments using multiple laminar fluid flows in capillary networks," Proc. Natl. Acad. Sci. USA, Vol. 96, p. 5545-5548, (1999).	
	✓	PRIME, K.L. AND G.M. WHITESIDES, "Self-assembled organic monolayers: model systems for studying adsorption of proteins at surfaces," Science, Vol. 252, p. 1164-1167, (1991).	
	✓	PRIME, K.L. AND G.M. WHITESIDES, "Adsorption of proteins onto surfaces containing end-attached oligo(ethylene oxide); a model system using self-assembled monolayers," J. Am. Chem. Soc., Vol. 115 (No. 23), p. 10714-10721, (1993).	
	✓	MRKSICH, M., ET AL., "Using microcontact printing to pattern the attachment of mammalian cells to self-assembled monolayers of alkanethiolates on transparent films of gold and silver," Exp. Cell Res., Vol. 235, p. 305-313, (1997).	
	✓	CHEN, C., ET AL., "Micropatterned surfaces for control of cell shape, position, and function," Biotechnol. Prog., Vol. 14 (No. 3), p. 356-363, (1998).	

Examiner Signature

Date

Considered

1/26/05

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional). ² Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

RECEIVED

PTO/SB/085 (2-0) 2002

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

TECHCENTER 1600/2900

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.



Substitute for form 1449B/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet 2 of 5

Complete if Known

Application Number 10/076,727
 Filing Date 02/13/2002
 First Named Inventor John T. Groves
 Group Art Unit 1645
 Examiner Name Unassigned
 Attorney Docket Number 1B-1695

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
my	✓	ROBERTS, C., ET AL., "Using mixed self-assembled monolayers presenting RGD and (EG)30H groups . . . surfaces," J. Am Chem. Soc., Vol. 120 (No. 26), p. 6548-6555, (1998).	
	✓	PAKALNS, T., ET AL., "Cellular recognition of synthetic peptide amphiphiles in self-assembled monolayer films," Biomaterials, Vol. 20, p. 2265-2279, (1999).	
	✓	REZANIA, A. AND K.E. HEALY, "Biomimetic peptide surfaces that regulate adhesion, spreading, cytoskeletal organization, and mineralization of the matrix deposited by osteoblast-like cells," Biotechnol. Prog., Vol. 15 (No. 1), p. 19-32, (1999).	
	✓	HERBERT, C.B., ET AL., "Micropatterning gradients and controlling surface densities of photoactivatable biomolecules on self-assembled monolayers of oligo(ethylene glycol) alkanethiolates," Chem. & Biol., Vol. 4 (No. 10), p. 731-737, (1997).	
	✓	BRIAN, A.A. AND H.M. MCCONNELL, "Allogenic stimulation of cytotoxic T cells by supported planar membranes," Proc. Natl. Acad. Sci. USA, Vol. 81, p. 6159-6163, (1984).	
	✓	TAMM, L.K. AND H.M. MCCONNELL, "Supported phospholipid bilayers," Biophys. J., Vol. 47, p. 105-113, (1985).	
	✓	SACKMANN, E., "Supported membranes: Scientific and practical applications," Science, Vol. 271, p. 43-48, (1996).	
	✓	BAYERL, T.M. AND M. BLOOM, "Physical properties of single phospholipid bilayers adsorbed to micro glass beads," Biophys. J., Vol. 58, p. 357-362, (1990).	
	✓	JOHNSON, S.J., ET AL., "Structure of an adsorbed dimyristoylphosphatidylcholine bilayer measured with specular reflection of neutrons," Biophys. J., Vol. 59, p. 289-294, (1991).	
	✓	KOENIG, B.W., ET AL., "Neutron reflectivity and atomic force microscopy studies of a lipid bilayer in water adsorbed to the surface of a silicon single crystal," Langmuir, Vol. 12 (No. 5), p. 1343-1350, (1996).	
	✓	MCCONNELL, H.M., T.H. WATTS, R.M. WEIS, AND A.A. BIRAN, "Supported planar membranes in studies of cell-cell recognition in the immune system," Biochim. Biophys. Acta, Vol. 864, p. 95-106, (1986).	

Examiner Signature

Date

Considered

1/26/05

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional). ² Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.



RECEIVED

PTO/SB/088 (10-01)
Approved for use through 10/31/2002. OMB 0691-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

TECH CENTER 1600/2900

Substitute for form 1449B/PTO

INFORMATION DISCLOSURE
STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet 3 of 5

Complete if Known

Application Number	10/076 727
Filing Date	02/13/2002
First Named Inventor	John T. Groves
Group Art Unit	1645
Examiner Name	Unassigned
Attorney Docket Number	IB-1695

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
my	✓	WATTS, T.H. AND H.M. MCCONNELL, "Biophysical aspects of antigen recognition by T cells," Ann. Rev. Immunol., Vol. 5, p. 461-475, (1987).	
	✓	CHAN, P.-Y., ET AL., "Influence of receptor lateral mobility on adhesion strengthening between membranes containing LFA-3 and CD2," J. Cell Biol., Vol. 115 (No. 1), p. 245-255, (1991).	
	✓	GRAKOU, A., ET AL., "The immunological synapse: A molecular machine controlling T cell activation," Science, Vol. 285, p. 221-227, (1999).	
	✓	LAWRENCE, M.B. AND T.A. SPRINGER, "Leukocytes roll on a selectin at physiological flow rates: distinction from and prerequisite for adhesion through integrins," Cell, Vol. 65, p. 859-873, (1991).	
	✓	ALON, R., D.A. HAMMER AND T.A. SPRINGER, "Lifetime of the P-selectin-carbohydrate bond and its response to tensile force in hydrodynamic flow," Nature, Vol. 374, p. 539-542, (1995).	
	✓	GROVES, J.T., N. ULMAN, AND S.G. BOXER, "Micropatterning fluid lipid bilayers on solid supports," Science, Vol. 275, p. 651-653, (1997).	
	✓	GROVES, J.T., N. ULMAN, P.S. CREMER, AND S.G. BOXER, "Substrate-membrane interactions: Mechanisms for imposing patterns on a fluid bilayer membrane," Langmuir, Vol. 14 (No. 12), p. 3347-3350, (1998).	
	✓	KUNG, L., J.T. GROVES, N. ULMAN, AND S.G. BOXER, "Printing via photolithography on micropartitioned fluid lipid membranes," Adv. Mater., Vol. 12 (No. 10), p. 731-734, (2000).	
	✓	GROVES, J.T. AND S.G. BOXER, "Electric field-induced concentration gradients in planar supported bilayers," Biophys. J., Vol. 69, p. 1972-1975, (1995).	
	✓	GROVES, J.T., C. WUELFING, AND S.G. BOXER, "Electrical manipulation of glycan-phosphatidyl inositol-tethered proteins in planar supported bilayers," Biophys. J., Vol. 71, p. 2716-2723, (1996).	
	✓	GROVES, J.T., S.G. BOXER, AND H.M. MCCONNELL, "Electric field-induced reorganization of two-component supported bilayer membranes," Proc. Natl. Acad. Sci. USA, Vol. 94, p. 13390-13395, (1997).	

Examiner Signature		Date Considered	1/26/05
--------------------	--	-----------------	---------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional). ² Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.



RECEIVED

PTO/SB/08B (10-01)

CMB 0651-0031

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449B/PTO

INFORMATION DISCLOSURE
STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet 4 of 5

Complete if Known

Application Number	10/076,727
Filing Date	02/13/2002
First Named Inventor	John T. Groves
Group Art Unit	1645
Examiner Name	Unassigned
Attorney Docket Number	IB-1695

TECH CENTER 1600/2900

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
ms	✓	CREMER, P.S., J.T. GROVES, L.A. KUNG, AND S.G. BOXER, "Writing and erasing barriers to lateral mobility into fluid phospholipid bilayers," <i>Langmuir</i> , Vol. 15 (No. 11), p. 3893-3896, (1999).	
	✓	HOVIS, J.S. AND S.G. BOXER, "Patterning barriers to lateral diffusion in supported lipid bilayer membranes by blotting and stamping," <i>Langmuir</i> , Vol. 16 (No. 3), p. 894-897, (2000).	
	✓	SCHLEGEL, R.A., T.W. PRENDERGAST, AND P. WILLIAMSON, "Membrane phospholipid asymmetry as a factor in erythrocyte-endothelial cell interactions," <i>J. Cell. Phys.</i> , Vol. 123, p. 215-218, (1985).	
	✓	WALL, R.K., S. JAFFE, D. KUMAR, AND V.K. KARLA, "Alterations in organization of phospholipids in erythrocytes as factor in adherence to endothelial cells in diabetes mellitus," <i>Diabetes</i> , Vol. 37 (No. 1), p. 104-111, (1988).	
	✓	CLOSSE, C., J. DACHARY-PRINGENT AND M.R. BOISSEAU, "Phosphatidylserine-related adhesion of human erythrocytes to vascular endothelium," <i>British J. Haematology</i> , Vol. 107, p. 300-302, (1999).	
	✓	SALAFSKY, J., J.T. GROVES, AND S.G. BOXER, "Architecture and function of membrane proteins in planar supported bilayers: a study with photosynthetic reaction centers," <i>Biochemistry</i> Vol. 35 (No. 47), p. 14773-14781, (1996).	
	✓	CREMER, P.S. AND T. YANG, "Creating spatially addressed arrays of planar supported fluid phospholipid membranes," <i>J. Am. Chem. Soc.</i> , Vol. 121 (No. 35), p. 8130-8131, (1999).	
	✓	PUU, G, I. GUSTAFSON, E. ARTURSSON & P.-A. OHLSSON, "Retained activities of some membrane proteins in stable lipid bilayers on a solid support," <i>Biosensors & Bioelectronics</i> , Vol. 10 (No. 5), p. 463-476, (1995).	
	✓	KAM, L. AND S.G. BOXER, "Cell adhesion to protein-micropatterned-supported lipid bilayer membranes," <i>J. Biomed. Mater. Res.</i> , Vol. 55 (No. 4), p. 487-495, (2001).	
	✓	DORI, Y., H. BIANCO-PELED, S.K. SATIJA, G.B. FIELDS, J.B. MCCARTHY, AND M. TIRRELL, "Ligand accessibility as means to control cell response to bioactive bilayer membranes," <i>J. Biomed. Mater. Res.</i> , Vol. 50, p. 75-81, (2000).	
	✓	VAN OUDENAARDEN, A. AND S.G. BOXER, "Brownian Ratchets: Molecular Separations in Lipid Bilayers Supported on Patterned Arrays," <i>Science</i> , Vol. 285, p. 1046-1048, (1999).	

Examiner
Signature

Date

Considered

1/26/05

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional). ² Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.



PTO/SB/088 (Rev. 01)
Approved for use through 10/31/2002. OMB 065-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449B/PTO		Complete if Known			
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Application Number	10/076 727		
		Filing Date	02/13/2002		
		First Named Inventor	John T. Groves		
		Group Art Unit	1645		
		Examiner Name	Unassigned		
Sheet	5	of	5	Attorney Docket Number	IB-1695

RECEIVED
MAY 20 2002
PATENT CENTER 1600/2800

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
MJ	✓	STEIN, T. AND G. GERISCH, "Oriented Binding of a Lipid-Anchored Cell Adhesion Protein . . . and Photoactive Crosslinking," Anal. Biochem., Vol. 237, p. 252-259, (1996).	
	✓	RUOSLAHTI, E. AND B. OBRINK, "Common Principles in Cell Adhesion," Exp. Cell Res., Vol. 227, p. 1-11, (1996).	
	✓	CROSSIN, K.L. AND L.A. KRUSHEL, "Cellular Signaling by Neural Cell Adhesion Molecules: the Immunoglobulin Superfamily," Developmental Dynamics, Vol. 218, p. 260-279, (2000).	
	✓	HUO, Y. AND K. LEY, "Adhesion molecules and atherogenesis," Acta Physiol Scand, Vol. 173, p. 35-43, (2001).	
	✓	KRIEGLSTEIN, C.F. AND D. N. GRANGER, "Adhesion Molecules and Their Role in Vascular Disease," Amer. J. Hypertension, Vol. 14 (No. 6), p. 44S-54S, (2001).	
	✓	MCFARLAND, C.D., C.H. THOMAS, C. DEFILIPPIS, J.G. STEELE, AND K.E. HEALY, "Protein adsorption and cell attachment to patterned surfaces," J. Biomed. Mater. Res., Vol. 49, p. 200-210, (2000).	
	✓	DU, H., P. CHANDAROY AND S.W. HUI, "Grafted poly-(ethylene glycol) on lipid surfaces inhibits protein adsorption and cell adhesion," Biochim. Biophys. Acta, Vol. 132 (No. 2), p. 236-248, (1997).	
	✓	GROVES, J.T., L.K. MAHAL AND C.R. BERTOZZI, "Control of cell adhesion and growth with membrane micro-arrays," Biophys. J. (Annual Meeting Abstracts), 80 (1), p. 144f, (2001).	
	✓	MASSIA, S.P. AND J.A. HUBBELL, "Covalent Surface Immobilization of Arg-Gly-Asp- and Tyr-Ile-Gly-Ser-Arg-Containing Peptides to Obtain Well-Defined Cell-Adhesive Substrates," Anal. Biochem., Vol. 187, p. 292-301, (1990).	

Examiner Signature		Date Considered	1/26/05
--------------------	--	-----------------	---------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional). ² Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.